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First record of *Mansoa minensis* M.M.Silva-Castro (Bignoniaceae, Bignonieae) in Espírito Santo, Brazil

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Abstract
Mansoa minensis M.M.Silva-Castro is reported for the first time for the state of Espírito Santo, Brazil. We provide an updated description, comparisons with closely related species, and suggest a revised conservation status for this species. We also present an identification key for all species of *Mansoa* that occur in Espírito Santo.

Key words
Atlantic Forest; endemism; IUCN categories.

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Introduction

The family Bignoniaceae comprises about 840 species (Olmstead et al. 2009). Although the family has a pantropical distribution, most of its species diversity is concentrated in the Neotropics (ca. 78% of the species, Gentry 1980). In this family, Bignonieae is the largest tribe with 21 genera and 393 species (Lohmann and Taylor 2014). From a phylogenetic point of view, the tribe Bignonieae and several of its genera seem to be monophyletic (Lohmann 2006).

Mansoa is a Neotropical genus comprising 16 species and occurs from Mexico to Argentina (Silva-Castro and Queiroz 2016). Morphologically, *Mansoa* is characterized by the lianescent habit, garlic or onion odor, leaflets with venation acrodromous imperfect, (supra) basal, trifid tendrils, and corolla usually pink to purple. The genus is widely distributed in Brazil in all vegetation types including rainforests, seasonal semideciduous forests, and savanna formations (Silva-Castro and Queiroz 2016), and all species occur in Brazil but *M. gentryi* M.M. Silva, which is endemic to Peru. As already stated by several authors (e.g., Gentry 1991, Udulutsch et al. 2010), the lianescent life form is usually neglected in most botanical surveys, which leads to the lack of herbarium collections and basic information about the ecology and geographical distribution of the species is uncertain.

During a floristic survey in the main forest fragments near to CVRD Reserve (Linhares, ES, Brazil), we found a new record of *Mansoa* from Espírito Santo state: *M. minensis* M.M.Silva-Castro, which was known only from Minas Gerais state.

Methods

The species was identified by consulting the protologue and specific literature on the genus (Silva-Castro 2010, Silva-Castro and Queiroz 2016), morphological analy-

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Figure 1. *Mansoa minensis* M.M.Silva-Castro. **A.** Fertile branch. **B.** Detail of the inflorescence and calyx. **C.** Trifid tendril.

ses of herbarium specimens, and comparison to type specimen images as well. The collected and examined specimens were deposited at CVRD and HASSI herbaria. Only fully developed structures were used for the morphological description. Terms used to describe two-dimensional shapes follow Hickey (1973), those used to describe indumentum are according to Payne (1978). Inflorescence type is according to Weberling (1989).

Results

New record. Brazil. Espírito Santo, Rio Bananal, road from Rio Bananal to São Jorge (19°12′51.5″ S, 040°21′24.6″ W), 5 Sept. 2012, fl., *D.A. Folli 6907* (CVRD 13876, HASSI 1172).

Additional specimens examined. Brazil. Minas Gerais: Padre Paraíso, Rodovia BR 116, km 192–193, 15 July 1988, fl., *G. Hatschcbach & G. Hatschcbach 52176* (BHCB).

Mansoa minensis M.M.Silva-Castro.
Figure 1

Type: Brazil. Minas Gerais: Marliéria, Rio Doce State Park, road to the restaurant, 19°46'34.5"S 42°36'8.5"W, 2 Sept. 2008, M.M. Silva-Castro, R.P. Oliveira, J.G. Carvalho-Sobrinho & F.M. Ferreira 1475 (Holotype HUEFS 140999!, Silva-Castro and Queiroz 2016).

Liana with garlic odor; branchlets brown when dried, without lenticels, striated, puberulous, trichomes simple and white to grayish; interpetiolar area without nectaries; axillary shoot with persistent prophylls; prophylls 4.0–8.0 × 1.0–1.5 mm, lanceolate, falcate, apex acuminate, puberulous, tricomas tectores simples, venation inconspicuous. Leaves petiolate; petiole 1.4–2.2 cm long, semiterete, puberulous; lateral petiolules 0.9–1.3 cm long; terminal petiolule 2.6 cm, semiterete, puberulous; shorter leaves at the base of inflorescences, petiole 0.5–0.6 cm, lateral petiolules 0.2–0.4 cm, terminal petiolule caducous. Tendrils trifid. Leaflet blades concolor when dry, opaque, chartaceous, margin flat, with prominent venation on both sides, venation acrodroumous imperfect basal, adaxial side with sparse trichomes and abaxial side puberulous when young, trichomes concentrated on the veins on both sides, nectaries pateliform, concentrated between primary and secondary veins; lateral leaflets 6.1–10.2 × 2.6–4.5 cm, lanceolate to elliptic, apex acuminate and mucronulate, base slightly asymmetric, acute to rounded; terminal leaflet 5.5 × 1.4 cm, elliptic, apex acuminate and mucronulate, base asymmetric, acute. Inflorescences thyrsoid, axillary or terminal, lax, brown when dry; peduncule 1.0–1.2 cm long, rachis 4.5–7.0 cm, puberulous, tector trichomes simple and white to grayish, scales lustrous, orangish yellow when dried; bracts persistent, 4.0–6.1 mm long, linear, filiform, with inconspicuous venation, puberulous. Flowers pedicellate; pedicel 1.5–3.0 mm, puberulous. Calyx green, campanulate, 1.4–2.2 × 0.5–0.9 cm, nectar glands lacking; lobes 1.1–1.4 × 0.2–0.5 cm, triangular,

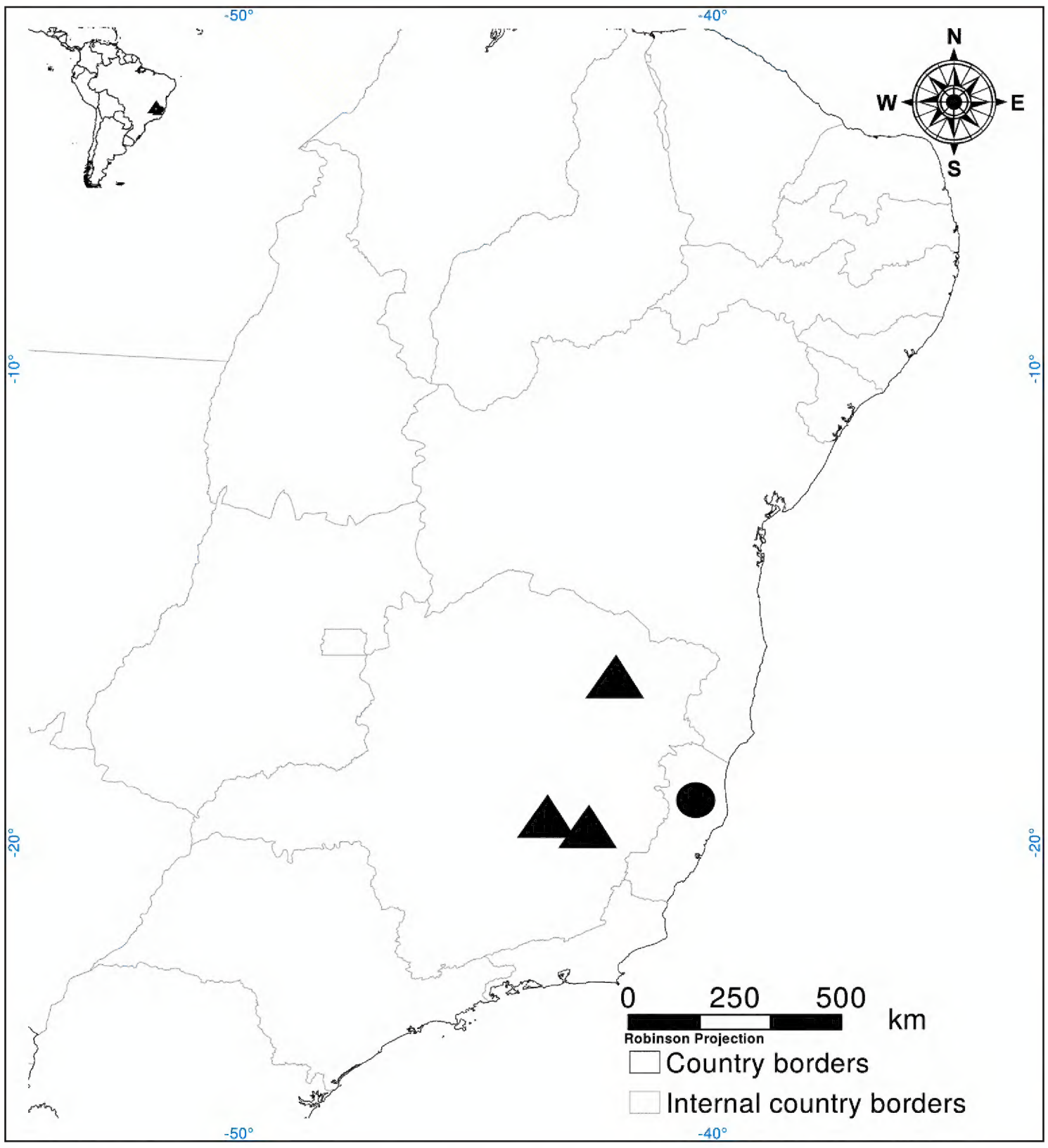

Figure 2. Map showing the current distribution of *Mansoa minensis* in the states of Minas Gerais (triangles) and Espírito Santo (circle), Brazil.

apex acuminate, pilose outside, papillose inside. Corolla purple, with basal portion of the tube whitish, tubular-campanulate; tube 3.0–3.6 cm long, 1.5–2.2 cm wide at the mouth, the cylindric base of the tube 0.9–1.1 × 0.3–0.5 cm, ⅓ superior puberulous outside, glabrous inside but glandular-tomentose at the level of stamen insertion; lobes 1.2–1.7 × 1.0–1.4 cm, obovate to rounded, obtuse at apex, puberulous on both sides. Stamens 4, included, longer filaments 2.1–2.3 cm long, shorter filaments 1.4–1.6 cm long, glabrous; anthers 3.0–4.0 mm long, connective apiculate, 1.2 mm long., glabrous; staminode 5.0–6.0 mm long, with lanceolate apex, membranaceous, glabrous. Disc annular 1.0–1.2 × 2.8 mm. Ovary 3.5 × 1.8 mm, subcylindric, pubescent; ovules 4-seriate, 18–20 per series; style 2.9–3.1 cm long, glabrous, stigma 4.0 × 1.5 mm, ovate. Fruit not seen, description based in Silva-Castro and Queiroz (2016): capsule smooth, 20.5–22 × 1–3 cm, apex acuminate, with irregular margin re-entrances, base acuminate; pubescent valves, peltate glandular trichomes, irregularly prominent midrib, calyx persistent. Seeds not seen.

In several herbaria, this species is often identified as *Mansoa hirsuta* DC. due to the strong garlic smell. However, *M. hirsuta* has calyx with 2–3 lobes and ovary with 2 series of ovules per locule (versus calyx with 5 lobes and ovary with 4 series of ovules per locule in *M. minensis*). Morphologically, *M. minensis* is similar to *M. ivanii* M.M. Silva, as both species have calyx with 5 lobes. However, *M. minensis* has corolla with lobes acuminate at the apex, included stamens and garlic smell (versus corolla with lobes slightly emarginate and mucronate at the apex, subexserted stamens, and onion smell, Silva-Castro and Queiroz 2016).

Key to species of *Mansoa* reported from Espírito Santo

1a Interpetiolar glands present ..... *M. hymenaea*
1b Interpetiolar glands absent 2

2a Calyx with nectar glands 3
2b Calyx lacking nectar glands 4

3a Calyx minutely 5-toothed ..... *M. difficilis*
3b Calyx 2- to 3-lobed ..... *M. glaziovii*

4a Plants without garlic odor; corolla cream, with a yellow tube ..... *M. lanceolata*
4b Plants with garlic odor; corolla purple 5

5a Calyx truncated to minutely 5-toothed; capsule verrucosus ..... *M. onohualcoides*
5b Calyx 5-lobed; capsule smooth ..... *M. minensis*

Distribution. Brazil: Minas Gerais (Caratinga, Dionísio, Marliéria and Padre Paraíso; Silva-Castro and Queiroz 2016); Espírito Santo (Rio Bananal) (Figure 2).

Discussion

Mansoa minensis was previously known from a few areas of semideciduous seasonal forest in Minas Gerais (Silva-Castro and Queiroz 2016) and is now known from Espírito Santo (Fig. 2). We found this species with flowers in September.

In the protologue, *M. minensis* is ranked as Least Concern, because this species was known to occur within a conservation unit. Although the discovery of *M. minensis* in Espírito Santo meaningfully extends the eastern range of this species by ca 200 km, this species is believed to be rare and restricted, as it is known from only a few herbarium collections.

The population of *M. minensis* was reported in 5 severely fragmented localities, with EOO (extent of occurrence) estimated as 500 km^2 and AOO (area of occupancy) estimated as 20 km^2. Anthropic activities can endanger this population, especially outside the conservation units, where livestock and agriculture are expanding. Therefore, following IUCN criteria (IUCN 2012, 2014), *M. minensis* should be considered as Endangered (B2a, B2b).

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Authors' Contributions

RGU identified the species, GSS collected samples, and RGU, GSS and PD wrote the manuscript.

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